SEQUENCE LISTING

<110> Gurskaya, Nadejda
       Fradkov, Arkadiy
       Lukyanov, Sergey
       Punkova, Natalia

<120> Fluorescent Protein From Aequorea Coerulscens And Uses Thereof

<130> EVRO-0006

<140> US 10/501,629

<141> 2005-07-15

<160> 25

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<212> DNA
<213> Aequoria coerulescens

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ctggttaata gaattgagtt aacaggtact gattttaaag aagatggaaa catccttgga 480
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aatggaatca aagttaactt caaaattaga cacaacattg aagatggaag cgttcaactt 600
gcagaccatt atcaacaaaa tactccaatt ggcgatggcc ctgtcctttt accagataac 660
cattacctgt ccacacaatc tacccttttcc aaagatccca acgaaaagag agatcacatg 720
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<210> 2
<211> 238
<212> PRT
<213> Aequoria coerulescens

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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20   25   30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
        35   40   45

Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50   55   60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65   70   75   80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85   90   95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100   105   110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115   120   125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130   135   140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145   150   155   160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165   170   175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                180   185   190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
            195   200   205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
    210   215   220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225   230   235

<210> 3
<211> 717
<212> DNA
<213> Aequoria coerulescens

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aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg gccaacactt 180
gtcactactt tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
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aaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgaaggtga tacctggtt 360
aatagaattg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctaccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
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<210> 4
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 4
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ala Val Pro Ile Leu Ile
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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20   25   30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
        35   40   45

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Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
            85                  90                  95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
            165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<210> 5
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 5
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gtcactactt tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatattttc 300
aaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgaaggtga taccctggtt 360
aatagaattg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctaccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgggtttg taacagctgc tgcgattaca catggcatgg atgaattata caaataa   717
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<210> 6
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 6
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ala Val Pro Ile Leu Ile
1               5                   10                  15
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
        35                  40                  45
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```
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<210> 7
<211> 720
<212> DNA
<213> Aequoria coerulescens

<400> 7
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aagttaaccc ttaaatttat ttgcactaca ggaaaactat gacctgttcc atggccaaca 180
cttgtcacta ctttctctta tggtgttcaa tgctttcaa gatatccaga tcatatgaaa 240
cagcatgact tcttcaagag tgccatgcct gaaggttata tacaggaaag aactatattt 300
ttcgaagatg acgggaacta caagtcgcgt gctgaagtca agttcgaagg tgatacctg 360
gttaatagaa ttgagttaac aggtactgat tttaaagaag atggaaacat ccttggaaat 420
aaaatggaat acaactataa cgcacataat gtatacatca tgacagacaa agcaaaaaat 480
ggaatcaaag ttaacttcaa aattagacac aacattgaag atggaagcgt tcaacttgca 540
gaccattatc aacaaaatac tccaattggc gatggccctg tccttttacc agataaccat 600
tacctgtcca cacaatctac cctttccaaa gatcccaacg aaaagagaga tcacatgatc 660
tattttgggt ttgtaacagc tgctgcgatt acacatggca tggatgaatt atacaaataa 720
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<210> 8
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 8
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1                5                  10                  15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
           35                    40                    45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                    55                    60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                    70                    75                    80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                    90                    95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                100                   105                   110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
                115                   120                   125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                   135                   140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                   150                   155                   160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                   170                   175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                180                   185                   190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
    195                   200                   205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                   215                   220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                   230                   235
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<210> 9
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 9
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aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg gccaacactt  180
gtcactactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag  240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatattttc  300
gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgaaggtga taccctggtt  360
aatagaattg agttaacagg tactgatttt aaagaagatg aaacatcct tggaaataaa  420
atggaataca ctataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga  480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac  540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac  600
ctgtccacac aatctaccct ttccaaagat cccaacgaaa agagagatca catgatctat  660
tttgggtttg taacagctgc tgcgattaca catggcatgg atgaattata caaataa     717
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<210> 10
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 10
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1                   5                   10                  15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
                35                      40                      45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
        50                      55                      60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                      70                      75                      80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                      90                      95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                     105                     110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
            115                     120                     125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
        130                     135                     140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                     150                     155                     160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                     170                     175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                     185                     190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
            195                     200                     205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
        210                     215                     220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                     230                     235


<210> 11
<211> 717
<212> DNA
<213> Aequoria coerulescens

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aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg gccaacactt 180
gtcactactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatatttttc 300
gaagatgacg gaactacaag tcgcgtgctg aagtcaagt tcgagggtga tacctggtt 360
aatagaatcg agttaacagg tactgatttt aaagaagatg aaacatcct ggaaataaa 420
atggaataca actataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttàccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgggtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa 717

<210> 12
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 12
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1                   5                       10                      15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                20                      25                      30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
                35                    40                    45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
        50                    55                    60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                    70                    75                    80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                        85                    90                    95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                100                   105                   110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                   120                   125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
        130                   135                   140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                   150                   155                   160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                   170                   175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                180                   185                   190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                   200                   205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
        210                   215                   220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                   230                   235
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<210> 13
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 13
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aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg ccaacacttt 180
gtcactactc tctcttatgg tgttcaatgc tttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatattttc 300
gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgagggtga tacccctggtt 360
aatagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgagtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa    717
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<210> 14
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 14
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1                   5                     10                    15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                20                    25                    30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
              35                      40                      45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
     50                      55                      60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                      70                      75                      80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                     85                      90                      95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                     100                     105                     110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
                     115                     120                     125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
     130                     135                     140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                     150                     155                     160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                     165                     170                     175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                     180                     185                     190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
                     195                     200                     205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
     210                     215                     220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                     230                     235
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<210> 15
<211> 717
<212> DNA
<213> Aequoria coerulescens


<400> 15
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aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg ccaacacttt  180
gtcactactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag  240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatatttttc  300
gaagatgacg gaactacaag tcgcgtgct gaagtcaagt tcgagggtga taccctggtt  360
aatagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa  420
atggaataca actataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga  480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac  540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac  600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatcctg  660
tttgagtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa  717


<210> 16
<211> 238
<212> PRT
<213> Aequoria coerulescens


<400> 16
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1                       5                       10                      15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                     20                      25                      30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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              35                      40                      45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
        50                      55                      60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                      70                      75                      80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                    85                      90                      95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                100                     105                     110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
            115                     120                     125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
        130                     135                     140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                     150                     155                     160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                     170                     175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                     185                     190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
            195                     200                     205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Phe Glu Phe Val
        210                     215                     220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                     230                     235
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<210> 17
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 17
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aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg ccaacactt 180
gtcactactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatatttttc 300
gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcaagggtga tacccctggtt 360
aatagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca ctataacgc  acagaatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatcctg 660
ctggagtttg taacagctgc tgcgattaca catggcatgg atgaactata ccaataa    717
```

<210> 18
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 18
```
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1               5                   10                      15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                      25                      30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
              35                    40                    45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
     50                    55                    60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                    70                    75                    80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                     85                    90                    95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                100                   105                   110
Lys Phe Lys Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
                115                   120                   125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
     130                   135                   140
Tyr Asn Ala Gln Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                   150                   155                   160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                   170                   175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                180                   185                   190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
     195                   200                   205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Glu Phe Val
     210                   215                   220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Gln
225                   230                   235
```

<210> 19
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 19
```
atgagtaaag gagcagaact tttcactgga attgtcccaa ttcttattga attaaatggt 60
gatgttaatg ggcacaaatt ctctgtcagt ggagagggcg aaggtgatgc gacatacgga 120
aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg gccaacactt 180
gtcgctactc tctcttatgg tgttcaatgc tttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatattttc 300
gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt cgagggtga taccctggtt 360
agtagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct ggaaataaa 420
atggaataca ctataacgc aactaatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attaaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgagtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa    717
```

<210> 20
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 20
```
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1                   5                    10                    15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                20                    25                    30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
                 35                           40                           45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Ala Thr Leu
         50                           55                           60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                           70                           75                           80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                             85                           90                           95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                         100                          105                          110
Lys Phe Glu Gly Asp Thr Leu Val Ser Arg Ile Glu Leu Thr Gly Thr
         115                          120                          125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
         130                          135                          140
Tyr Asn Ala Thr Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                          150                          155                          160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly Ser Val
                         165                          170                          175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                 180                          185                          190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
         195                          200                          205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
         210                          215                          220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys  ·
225                          230                          235
```

<210> 21
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 21
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atgagtaaag gagcagaact tttcactgga attgtcccaa ttcttattga attaaatggt 60
gatgttaatg ggcacaaatt ctctgtcagt ggagagggcg aaggtgatgc gacatacgga 120
aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg ccaacactt 180
gtcactactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatattttc 300
gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgagggtga taccctggtt 360
aatagaatcg agttaacagg tactgatttt aaagaagatg aaacatcct tggaaataaa 420
atggaataca ctataacgc atctaatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttgaaaat tagacacaac attgcagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgagtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa   717
```

<210> 22
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 22
```
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1                5                           10                           15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
             20                           25                           30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
                35                      40                      45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
        50                      55                      60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                      70                      75                      80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                      90                      95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                100                     105                     110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
            115                     120                     125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
        130                     135                     140
Tyr Asn Ala Ser Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                     150                     155                     160
Ile Lys Val Asn Leu Lys Ile Arg His Asn Ile Ala Asp Gly Ser Val
                165                     170                     175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                     185                     190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                     200                     205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
    210                     215                     220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Ile Lys
225                     230                     235
```

```
<210> 23
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 23
atgagcaagg gcgccgagct gttcaccggc atcgtgccca tcctgatcga gctgaatggc  60
gatgtgaatg gccacaagtt cagcgtgagc ggcgagggcg agggcgatgc cacctacggc  120
aagctgaccc tgaagttcat ctgcaccacc ggcaagctgc ctgtgccctg cccacccctg  180
gtgaccaccc tgagctacgg cgtgcagtgc ttctcacgct accccgatca catgaagcag  240
cacgacttct tcaagagcgc catgcctgag ggctacatcc aggagcgcac catcttcttc  300
gaggatgacg gcaactacaa gtcgcgcgcc gaggtgaagt cgagggcga taccctggtg  360
aatcgcatcg agctgaccgg caccgatttc aaggaggatg caacatcct gggcaataag  420
atggagtaca actacaacgc ccacaatgtg tacatcatga ccgacaaggc caagaatggc  480
atcaaggtga acttcaagat ccgccacaac atcgaggatg cagcgtgca gctggccgac  540
cactaccagc agaatacccc catcggcgat ggccctgtgc tgctgcccga taaccactac  600
ctgtccaccc agagcgccct gtccaaggac cccaacgaga gcgcgatca catgatctac  660
ttcggcttcg tgaccgccgc cgccatcacc cacggcatgg atgagctgta caagtga      717
```

```
<210> 24
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 24
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
1               5                       10                      15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                      25                      30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
                35                      40                      45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                      55                      60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                      70                      75                      80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                    85                      90                      95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
                100                     105                     110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
                115                     120                     125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                     135                     140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                     150                     155                     160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                     170                     175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                180                     185                     190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
                195                     200                     205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                     215                     220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                     230                     235
```

<210> 25
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 25
```
Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val
 1               5                       10                      15
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                20                      25                      30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
            35                      40                      45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                      55                      60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                      70                      75                      80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
                    85                      90                      95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
                100                     105                     110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
                115                     120                     125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
    130                     135                     140
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
145                     150                     155                     160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                     170                     175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                180                     185                     190
```

Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195   200   205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
        210   215   220
Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225   230   235